

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for processing an XML document, wherein said XML document comprises a tree structure comprising branches comprising a plurality of nodes, the method comprising steps of:

receiving a query comprising [[an]] a relative XPath expression relative to a context node, the query comprising search criteria and wherein the search criteria comprise a set of constraints that specify forward ~~or~~ and backward relations between nodes;

receiving at least a portion of the XML document;

receiving [[a]] the context node from the XML document with respect to which the search criteria are applied;

receiving at least a portion of the XML document;

evaluating the relative XPath expression relative to the context node by producing a modified X-DAG of the at least a portion of the XML document, wherein the modified X-DAG is a graph representation of the at least a portion of the XML document generated from the XPath expression, representing the XPath expression and its constraints; and wherein the modified X-DAG comprises a “ctxt” node that only matches the context node; and wherein the modified X-DAG converts backward constraints into forward constraints;

modifying the search criteria in the query to introduce constraints relative to the “ctxt” node a constraint matching the context node into the set of constraints;

searching the modified query over the modified X-DAG, beginning at a root node, processing the at least a portion of the XML document modified X-DAG in a streaming manner and using the modified search criteria in a single depth-first traversal of the at least a portion of the XML document modified X-DAG; and

locating one or more nodes that satisfy the modified search criteria.

2. (Previously presented) The method of claim 1, wherein the XML document is stored in memory.
3. (Cancelled)
4. (Previously presented) The method of claim 1, wherein the XML document is a streaming document.
5. (Canceled)
6. (Cancelled)
7. (Canceled)
8. (Previously presented) The method of claim 1 further comprising reordering the tree structure representing the XML document to be searched such that the number of nodes traversed is minimized.
9. (Previously presented) The method of claim 1 further comprising reordering the tree structure representing the XML document to be searched such that the context node is traversed as early as possible.
10. (Previously presented) The method of claim 1 further comprising reordering the tree structure representing the XML document to be searched such that the context node appears in the path of the tree that is traversed first.
11. (Currently amended) An information processing system comprising memory for storing the following instructions:
receiving a query comprising [[an]] a relative XPath expression relative to a context

node, the query comprising search criteria and wherein the search criteria comprise a set of constraints that specify forward [[or]] and backward relations between nodes;

receiving at least a portion of said XML document;

receiving [[a]] the context node of [[an]] the XML document with respect to which the search criteria are applied;

receiving at least a portion of said XML document;

evaluating the relative XPath expression relative to the context node by producing a modified X-DAG of the at least a portion of the XML document, wherein the modified X-DAG is a graph representation of the at least a portion of the XML document generated from the XPath expression, representing the XPath expression and its constraints; and wherein the modified X-DAG comprises a “ctxt” node that only matches the context node; and wherein the modified X-DAG converts backward constraints into forward constraints;

modifying the search criteria in the query to introduce [[a]] constraint constraints relative to the “ctxt” node matching the context node into the set of constraints;

searching the modified query over the modified X-DAG, beginning at a root node, processing the at least a portion of the XML document modified X-DAG in a streaming manner and using the modified search criteria in a single depth-first traversal of the modified X-DAG at least a portion of the XML document, and

locating one or more nodes that satisfy the modified search criteria; and

memory for storing the above instructions; and

a processor for performing the instructions.

12. (Canceled)

13. (Previously presented) The information processing system of claim 11 wherein the XML document is stored in memory.

14. (Cancelled)

15. (Previously presented) The information processing system of claim 11 wherein the XML document is a streaming document.
16. (Previously presented) The information processing system of claim 11 wherein the memory further comprises logic for modifying the search criteria such that constraints specifying a backward relation may be reformulated into forward constraints.
17. (Cancelled)
18. (Canceled)
19. (Previously presented) The information processing system of claim 11 further comprising logic for reordering the tree structure representing the XML document to be searched such that the number of nodes traversed is minimized.
20. (Previously presented) The information processing system of claim 11 further comprising logic for reordering the tree structure representing the XML document to be searched such that the context node is traversed as early as possible.
21. (Canceled)
22. (New) A computer readable_medium comprising program instructions for:
 - receiving a query comprising an XPath expression, the query comprising search criteria and wherein the search criteria comprise a set of constraints that specify forward or backward relations between nodes;
 - receiving a context node of an XML document with respect to which the search criteria are applied;
 - receiving at least a portion of said XML document;
 - modifying the search criteria such to introduce a constraint matching the context node

into the set of constraints;

processing the at least a portion of the XML document in a streaming manner and using the modified search criteria in a single depth-first traversal of the at least a portion of the XML document; and

locating one or more nodes that satisfy the modified search criteria.